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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,232	01/15/2002	Monte C. Magill	OUTT-009/02US	2993

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EXAMINER

SALVATORE, LYNDIA

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 02/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/052,232

Applicant(s)

MAGILL ET AL. 

Examiner

Lynda M Salvatore

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-67 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 24-30, 33-46, 48-58 and 60-64 is/are rejected.
- 7) ☒ Claim(s) 10-23, 31, 32, 47, 59 and 65-67 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☒ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

1. Applicant's amendments and accompanying remarks filed 11/26/03 have been fully considered and entered. Claims 1-5, 10-11, 13, 15-16, 24-30, 40, 43-46, 54, 57-60 and 63-64 have been amended and claims 68-92 have been canceled as requested. Applicant's amendments to claims 10, 40, and 54 have been found sufficient to overcome the rejections of claims 10-15, 40-51 and 54-58 rejected under 35 U.S.C. 102(b) as being anticipated or, in the alternative, under 35 U.S.C. 103(a) as obvious over by Bryant et al., US 5,366,801. Specifically, the prior art of Bryant et al., fails to teach a multi-component fiber having embedded microencapsulated phase changing materials in the core and sheath polymers. Presently, Bryant et al., only teaches coating a fiber with a binder comprising microencapsulated phase changing materials. The fiber taught by Bryant makes up the inner or core material and does not comprise any phase changing materials. Thus, said rejection is hereby withdrawn. Applicant's amendments to claims 10 and 46 are found sufficient to overcome claims 10 and 46 rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al., US 5,153,066. Tanaka et al., fails to teach multi-component fiber having embedded microencapsulated phase changing materials in the core and sheath polymers. Thus, said claim rejections are hereby withdrawn. However, despite this advance in prosecution, Applicant's amendments are not found to patently distinguish claims 1-4, 6-9, 24-30, 33-42, 48, 49, 51-56, 60-62 and 64 over the prior art of Tanaka et al., and upon further consideration a new ground of rejection is necessitated.

***Election/Restrictions***

2. Claim 68-92 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected method for making a multi-component fiber and fabric, there being no allowable generic or linking claim. Election was made **without** traverse on 11/26/03.

***Allowable Subject Matter***

3. The indicated allowability of claims 5 and 63 as set forth in section 11 of the last Office Action is withdrawn in view of Applicant's amendments. Rejections based on Tanaka et al., are set forth herein below.

***Claim Rejections - 35 USC § 102/103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-9, 24-26, 28-30, 33-45, 48-56, 58, and 60-64 are rejected under 35 U.S.C. 102(b) as being anticipated or, in the alternative, under 35 U.S.C. 103(a) as obvious over by Tanaka et al., US 5,153,066.

The patent issued to Tanaka et al., teaches microencapsulating a temperature sensitive color changeable material and embedding said microcapsules into the core polymer of a conjugate filament (Abstract, figures 1-6 and Column 1, 59-63). Tanaka et al., teaches various conjugate structures including the island-in-sea and sheath/core configurations (Figures 1-6). Tanaka et al., also teaches a composite fiber denier of 5 or more (Column 8, 9-15). The thermally color phase changeable material comprises, an electron donating chromatic organic compound, an electron accepting organic compound, a compound as a reaction medium, and a thermoplastic polymer such as polyethylene, polypropylene or polyamide (Abstract, Column 3, 1-5; and

Art Unit: 1771

Column 4, 9-15). The thermally color changeable material takes the form of solid fine particles (Column 3, 5-8). Suitable electron donating compounds include polyaryl carbinols, lactams, indolines, and diaryl phthalides (Column 3, 40-43). Suitable electron accepting compounds include phenolic compounds, metal salts of phenolic compounds, aromatic carboxylic acids, and triazole compounds (Column 3, 44-48). In addition, the thermally color changeable material may further comprise an ultraviolet absorber such as benzotiazole (Column 7, 17-23). Tanaka et al., teaches that the imbedded micro-capsules are protected by a protective polymer sheath which may comprise polyesters such as terphthalic acid or polyamides (Column 4, 50-69 and Abstract). The polymer comprising the imbedded microcapsules may comprise polyethylene, polypropylene, or polyamides (Column 4, 9-16 and Abstract). The relative ratios of the amounts of core polymer to the amount of sheath polymer are 20:80 to 95:5 respectively (Column 7, 12-16). Tanaka et al., teaches mixing 30 parts thermally color changeable material with polyamide in examples 6 and 7 (Column 10). The composite fiber comprising the thermally color changeable microcapsules are suitable in the treatment of a woven or knitted fabric (Column 6, 44-50).

With regard to the transition temperature ranges recited in claims 1,2,24,25,40,44,58, and 60 Tanaka et al., does not explicitly teach the transition temperature ranges, however, it is reasonable to presume that said properties are inherent to the invention of Tanaka et al. Support for said presumption is found in the use of like materials (i.e., thermally color phase changeable material comprising a thermoplastic polymeric material) and the use of like processes such as microencapsulating and forming a multi-component fiber, which would result in the claimed property. Moreover, in the Tanaka et al., article, body heat is responsible for the change in

Art Unit: 1771

coloring. As such, it is the position of the Examiner that the transition temperature would have to be at least 37°C. Accordingly, it would be obvious to one having ordinary skill in the art to provide the clothing article of Tanaka et al., with transition temperature range that includes  $\pm 8^\circ\text{C}$  to enhance visual effect. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 594

In addition, the presently claimed temperature transition ranges would obviously have been present once the Tanaka et al., product is provided. *In re Best*, 195 USPQ 433

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 27, 46 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al., US 5,153,066 as applied to claims 24 and 54 above, in view of Bryant et al., US 5,366,801.

Tanaka et al., fails to teach a phase change material comprising a paraffinic hydrocarbon, however, Bryant et al., teaches a polymer binder comprising microencapsulated temperature phase change material (Column 3, 20-25). The phase change materials include paraffinic hydrocarbons such as those shown in table 1 (Column 3, 50-65). Bryant et al., teaches achieving optimum thermal properties for a given temperature by modifying the phase change material to

Art Unit: 1771

include a paraffinic hydrocarbon (Column 3, 35-50). Said phase changes materials can be separately encapsulated (Column 4, 1-5).

With regard to claim 46, Bryant et al., teaches microcapsules comprising temperature stabilizing polyhydric alcohols such as 2-hydroxymethyl-2-methyl-1, 3-propanediol (Column 3, 35-40).

Therefore motivated by the desire to achieve optimum thermal and stabilizing properties, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the phase change composition taught by Tanaka et al., with a paraffinic hydrocarbons and temperature stabilizing polyhydric alcohols as taught by Bryant et al,

***Allowable Subject Matter***

8. Claims 10-23, 31,32, 47,59 and 65-67 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art of record fails to teach or fairly suggest embedding the microencapsulated phase changing materials in the core and sheath polymers or having a mixture of phase changing materials in the island component of the island-in-sea configuration. Presently, the prior art only teaches a conjugate fiber, wherein one of the polymer matrices comprises the encapsulated materials. Therefore, absent such teachings and motivation to combine references to form an obvious type rejection, said claims are found to be allowable over the prior art record.

Art Unit: 1771

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynda M Salvatore whose telephone number is 571-272-1482.

The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1482. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-0994.

February 4, 2004.

ls 



**TERREL MORRIS**  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700